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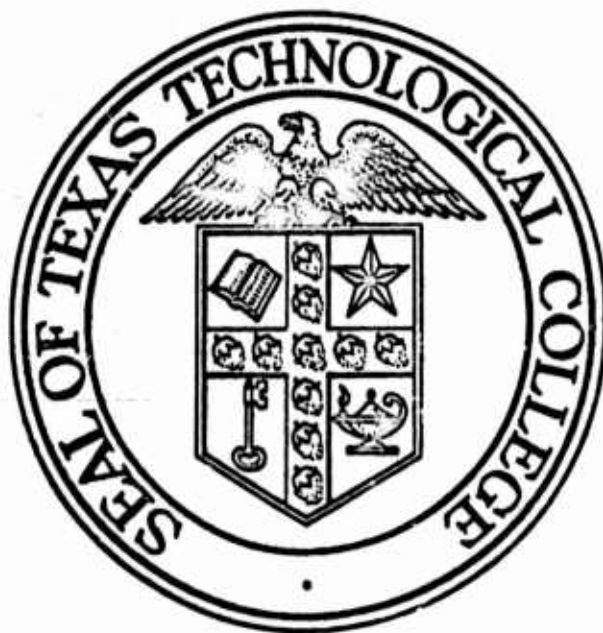
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CONSULTING REPORT

Education for Responsibility, Part II:

Peer Evaluation and Related Data

June, 1969



**Center of Biotechnology, Fatigue and  
Human Performance**

**Texas Technological College**

**Lubbock**

## CONSULTING REPORT

### EDUCATION FOR RESPONSIBILITY: PART II

#### Peer Evaluation and Related Data

by

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June 1969

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### ACKNOWLEDGEMENTS

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## SUMMARY AND CONCLUSIONS

### PURPOSE OF STUDY

A series of educational experiences is being developed in conjunction with the Department of Military Science at the suggestion of Colonel Maxwell C. Murphy, PMS. Cpt. John O. Simus is the Project Officer. The present report presents the correlates between behavior in one such educational experience and other indicants of leadership.

### APPROACH

Coefficients of correlation were calculated among eight variables hypothesized to be indicants of leadership. Two clusters were derived from the resulting correlation matrix. One variable consisted of peer evaluation, measured by asking each sophomore cadet to rank-order all of the sophomore cadets in his own cadet company. Three other variables were derived from behaviors exhibited during an earlier research effort. The remaining variables were grade point average, cadet rank, birth order, and family size.

## CONCLUSIONS

1. Two aspects of leadership were measured by the eight variables:

- (a) technical competence, and
- (b) responsibility-taking.

2. The "initiative" variable from the earlier research is the sole measure that taps both aspects of leadership.

3. These data support the validity of planned approaches to developing educational experiences designed to increase self-knowledge and responsibility-taking.

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EDUCATION FOR RESPONSIBILITY: PART II

Peer Evaluation and Related Data



## INTRODUCTION

### BACKGROUND AND PURPOSE

The Department of Military Science is a unit of the School of Arts and Sciences at Texas Technological College. The role of this Department, within the School and College, is that of leadership development. The Department serves as a leadership laboratory. Here students may elect courses designed to increase self-knowledge, teach responsibility and initiative, and develop mature citizenship.

This report is the second of a series dealing with ways to operationalize, to specify in behavioral terms, the student performance objectives required to ensure that the Department's role in the parent institution is efficiently conducted. This research was, and is being, jointly conducted by members of the Department of Military Science and by members of the Psychology Department who are also involved in the Center of Biotechnology, Fatigue and Human Performance's THEMIS research program.

The first report in this series (George, Simus, and Lumpkin; 1969) described an educational experience in which sophomore cadets were given opportunities to display

initiative (responsibility-taking) and were provided with knowledge of results. Knowledge gained made possible learning; learning to correct deficiencies or to develop compensatory behavior for them. Three measures were derived from this situation which play a part in the present research. The first is a count of the number of initiative-taking behaviors displayed by each cadet, as observed by trained graduate students in psychology. This is the "initiative" variable. The cadet's peers and co-workers wrote positive critical incident reports if he performed some outstandingly valuable act, or negative critical incident reports for behaviors which detracted from group performance. The number of each type of incident reported for a cadet represents variables titled "positive critical incidents" and "negative critical incidents."

The present paper reports intercorrelations among the three variables discussed above and five additional variables believed to be relevant. These intercorrelations are expected to provide insight into the behavioral constituents of leadership (influencing other, responsibility-taking) in the social system of the Department of Military Science. Such data may also enable the Department to develop measures of its progress in meeting its obligations and to discover which cadets require additional experiences in responsibility-taking.

## METHODOLOGY

All sophomore cadets attending class on 16 April 1969 were administered a leadership evaluation form by Captain John O. Simus, the classroom instructor. Each cadet was instructed to rank-order his peers, the sophomore cadets in his company, according to leadership potential. Also collected was information concerning the size of family the cadet was reared in<sup>1</sup> and his birth order. Complete instructions are reproduced in Appendix A.

Final variables were cadet grade point average (GPA) at the conclusion of the freshman year and cadet rank, as assigned by upper-division cadets. The eight variables available for study were intercorrelated and two clusters of variables were extracted. A multiple correlation was also calculated between peer ranking scores and the remaining variables. Peer ranking scores were treated as the dependent variable in this instance because they have, in other settings, been demonstrated to predict later leadership behavior (Hollander and Webb, 1955; George, 1962). For purposes of statistical treatment, peer ranking data were converted to standard scores according to Guilford's (1954) procedure.

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<sup>1</sup>Number of children.

## RESULTS AND DISCUSSION

Descriptive statistics for the 41 cadets on whom all eight sets of data were available are presented in Table 1.

Table 1  
Means and Standard Deviations of Eight Leadership Variables

Variable	Mean	S.D.
1 Initiative	3.63	2.77
2 Positive Critical Incidents	.88	1.10
3 Negative Critical Incidents	.63	.97
4 Grade Point Average	2.10	.67
5 Cadet Rank	3.27	.78
6 Birth Order	1.78	1.01
7 Family Size	3.32	1.54
8 Peer Evaluation	5.20	2.43

It will be noted that several of the variables, especially 2 and 3, are very restricted in range. This restriction attenuated the correlations among variables. Table 2 presents the complete set of intercorrelations. A correlation of .31 or higher is considered to be statistically significant.

Table 2  
Correlations Among Eight Variables

Variable	2	3	4	5	6	7	8
1 Initiative	.47	-.37	.04	.30	-.01	.26	.45
2 + C.I.		-.16	.19	.01	.25	.21	.06
3 - C.I.			-.34	-.30	-.16	-.15	-.47
4 GPA				.25	.16	-.11	.33
5 Cadet Rank					-.02	.07	.61
6 B. Order						.48	-.03
7 Fam. Size							-.09
8 Peer Eval.							

From column 8 of Table 2, it is apparent that peer evaluations are most highly related to superior evaluations as indicated by cadet rank. It is rational, of course, for sophomore cadets to be influenced by senior cadet opinion, and it may be that sophomores and seniors are independently selecting the same people as outstanding. In either case, it seems that peer evaluation does not add much to the information available from variables 5, 3, 1 and 4, in that order. The clusters into which the intercorrelated variables fall are given in Tables 3 and 4.

Table 3

## Cluster A: Leadership (Technical Competence &amp; Academics)

Variable	Mn r*
8 Peer Evaluation	.49
5 Cadet Rank	.41
3 Few - C.I.	.37
4 Grade Point Average	.31

\*Average correlation between the variable and the remaining variables in the cluster.

This cluster is tentatively interpreted as the technical competence and academic ability aspect of leadership due to the inclusion of Grade Point Average and the probability that peer and superior evaluation in an academic setting are influenced by academic achievement. An equally good case could be made for naming this "peer and superior evaluation," with the further statement that Grade Point Average, and not receiving negative critical incident reports through ineptness, are determinants of such evaluations. In any case, successful leadership in work-oriented organizations does depend in part upon technical competence and it is not unreasonable to assume that Cluster A is reflecting this aspect of leadership.

Table 4

## Cluster B: Leadership (Responsibility-taking)

Variable	Mn r*
1 Initiative	.37
2 + C.I.	.35
7 Family Size	.24

\*Average correlation between the variable and the remaining variables in the cluster.

Cluster B is interpreted as "responsibility-taking" since this is essentially what initiative, as seen by objective observers, involves. Family size probably falls into this cluster due to the tendency to give children in large families more responsibility than is given to those in smaller families.

It is worthy of note that initiative also correlates significantly with variables 8 and 5 of Cluster A. Indeed, it fails to show some appreciable degree of correlation only with Grade Point Average. Perhaps initiative is the best single measure of both aspects of leadership, technical competence and responsibility-taking.

Another way to look at these relationships is to select one variable and find the best predictors of it from among the remaining variables. Peer evaluation was selected as the variable to be predicted for the reasons given in the Introduction. A multiple-correlation of .74

was calculated between peer evaluation scores and variables 1 (initiative), 3 (negative critical incidents), 5 (cadet rank), 7 (family size). Peer evaluation scores are predictable from the following equation:

$$Y^1 = 1.2360 + .2329(1) + 1.4578(5) - .6720(3) - .3695(7)$$

where  $Y^1$  = predicted peer evaluation, 1.2360 is a constant and (1), (5), (3), (7) represent initiative, cadet rank, negative critical incidents, and family size respectively. While peer evaluation scores may not prove to be the criterion of greatest interest in the ROTC setting, and the multiple correlation will undoubtedly shrink upon replication, this finding does indicate that useful evaluations can be devised for use in the Department of Military Science.

#### CONCLUSIONS AND RECOMMENDATIONS

The initiative variable is a particularly useful one in that it taps both the technical competence and motivational aspects of leadership, although it is independent of (uncorrelated with) Grade Point Average. Additional educational experiences should be developed wherein initiative is required and cadets receive feedback on the adequacy of their responses. If each cadet could undergo several such experiences over his four years of Army ROTC,



he could evaluate his maturation over time in learning to take responsibility for others.

It might also be useful to develop a new set of evaluation forms from which a cadet could be given feedback concerning his progress in gaining the confidence of his peers and superiors and in gaining the respect of his subordinates. He could then be guided by faculty members in how to behave more effectively with others.

## APPENDIX

### Instructions to Cadets

MS II EVALUATION PROGRAM  
PEER RATING INSTRUCTIONS

16 April 1969

1. First find your own name on this list and draw a circle around it. We would like to know your birth order within your family and your family size. For instance, if you were an only child, simply write an 0 in the upper right-hand corner of your rating sheet. If you were the first-born of three children in your family, indicate this by writing 1-3 in the upper right-hand corner of the sheet. If you were the fourth of five children, write 4-5. The first number should represent your birth order in the family; the second number, the number of children in your family (including yourself).

2. You are to evaluate all of the MS II's in your company, including yourself, in terms of leadership capability based on your personal observations and knowledge. Place a "1" in the blank next to the name of the man who is highest in leadership capability in your judgment. Then place a "2" in the blank next to the name of the second most capable and so on until you have ranked every name including your own. For the two most highly ranked (1 & 2), and the two most lowly ranked write in your justifications for these extreme rankings in the remaining blank spaces.

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